APPEAL BRIEF

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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

Appellants:	Assaf Govari, et al.	**Examiner:**	Jonathan Cwern
Serial No:	10/785,162	**Art Unit:**	3737
Filed:	February 23, 2004	**Docket:**	BIO5042USNP
For:	ROBOTICALLY GUIDED CATHETER	**Dated:**	May 27, 2011

Confirmation No. 8493

Commissioner for Patents
P.O. Box 1450
Alexandria, VA 22313-1450

APPEAL BRIEF

Sir:

Pursuant to 35 U.S.C. § 134 and 37 C.F.R. § 41.37, entry of this Appeal Brief in support of the Notice of Appeal filed March 30, 2011 in the above-identified matter is respectfully requested. This paper is submitted as a brief setting forth the authorities and arguments upon which Appellant relies in support of the appeal from the Final Rejection of Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 in the above-identified patent application on January 31, 2011. The rejection of Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 currently remains.

I. REAL PARTY OF INTEREST

The real party in interest is Biosense Webster, Incorporated, assignee of 100% interest of the above-referenced patent application.

II. RELATED APPEALS AND INTERFERENCE

There are no other appeals or interferences known to Appellant, Appellant's legal representative or Assignee, which would directly affect or be directly affected by or have a bearing on the Board's decision in this appeal.

III. STATUS OF CLAIMS

Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 are pending in the subject application. Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 are being presented on appeal and are set forth fully in the attached Claims Appendix.

The Examiner rejected claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 under 35 U.S.C. §103(a) as being allegedly unpatentable over Ben-Haim (U.S. Patent No. 6,083,170).

Appellants respectfully appeal the rejection of Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 under 35 U.S.C. §103(a) as allegedly unpatentable over Ben-Haim, which is the sole issue in this Appeal.

IV. STATUS OF AMENDMENTS

No amendment was filed in Response to the Final Rejection mailed January 31, 2011. Appellants timely filed a Notice of Appeal on March 30, 2011. Therefore, the claims are pending as set forth in the Claims Appendix.

V. SUMMARY OF CLAIMED SUBJECT MATTER

Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 are the claims on appeal. A copy of the rejected claims is attached hereto in the Claims Appendix.

Appellants mention that reference numbers, figure numbers and references to passages in the Specification used in this section and other sections of the Appeal Brief are provided merely for the benefit of the Board and for meeting the requirements set forth in 37 C.F.R. § 41.37(c)(v) and are not meant to limit the scope of the claimed invention in any manner.

The invention with respect to claim 1 comprises a robot for use with a human-controllable steerable catheter (#20, #40) that includes a thumb control (#46) configured to manually control a deflection of a distal tip (#34, #42) of the catheter (#20, #40) and a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) fixed in a vicinity of the distal tip of the catheter, the robot comprising: an end-effector (#52) coupled to the thumb control (#46); and a controller (#48) configured to non-manually manipulate the thumb control (#46) in response to the position signal to drive the end-effector (#52) to position the distal tip (#34, #42) of the catheter (#20, #40) at a desired position based on the six dimensions of location and orientation information.

The invention with respect to claim 6 comprises apparatus comprising a human-controllable steerable catheter (#20, #40) comprising a thumb control (#46) configured to manually control a deflection of a distal tip (#34, #42) of the catheter (#20, #40) and a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) being fixed in a vicinity of the distal tip (#34, #42) of the catheter (#20, #40); and a robot (#22, #38), comprising: an end-effector (#52)

coupled to the thumb control (#46); and a controller (#48) configured to non-manually manipulate the thumb control (#46) in response to the position signal to drive the end-effector (#52) to position the distal tip (#34, #42) of the catheter (#20, #40) at the desired position based on the six dimensions of location and orientation information.

The invention with respect to claim 7 comprises a robot for use with a human-controllable steerable catheter (#20, #40) that includes controls (#44, #46) configured to control a deflection of a distal tip (#34, #42) of the catheter (#20, #40) and a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) being fixed in a vicinity of the distal tip (#34, #42) of the catheter (#20, #40), and the controls (#44, #46) being generally optimized for manipulation by a human hand, the robot comprising: at least one end-effector (#52) coupled to at least a portion of the controls (#44, #46); and a controller (#48) configured to drive the at least one end-effector (#52) to deflect the distal tip (#34, #42) in response to the position signal by inducing motion of the portion of the controls that generally mimics motion of the portion of the controls induced when a human hand manipulates the controls.

The invention with respect to claim 12 comprises apparatus comprising a human-controllable steerable catheter (#20, #40) comprising controls (#44, #46) configured to manually control a deflection of a distal tip (#34, #42) of the catheter (#20, #40) and a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) being fixed in a vicinity of the distal tip (#34, #42) of the catheter (#20, #40), and the controls (#44, #46) being generally optimized for manipulation by a human hand; and a robot (#22, #38), comprising: at least one end-effector (#52) coupled to at least a portion of the controls (#44, #46); and a controller (#48) configured to

drive the end-effector (#52) to position the distal tip (#34, #42) of the catheter (#20, #40) at the desired position based on the six dimensions of location and orientation information by inducing motion of the portion of the controls that generally mimics motion of the portion of the controls induced when a human hand manipulates the controls.

The invention with respect to claim 13 comprises apparatus comprising a human-controllable steerable catheter (#20, #40), comprising: a distal tip (#34, #42) configured to be controllably deflectable in no more than two directions for any given rotation of the distal tip (#34, #42), such that a set of all points to which the tip can be deflected at the given rotation forms a deflection curve for the given rotation; and a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) being fixed in a vicinity of the distal tip (#34, #42); a robot (#22, #38) configured to manipulate a proximal end of the catheter (#20, #40); and a control unit (#28) configured to: receive the position signal, and position the distal tip (#34, 42) of the catheter (#20, #40) at a target by manipulating the robot (#22, 38) in response to the position signal to: position the distal tip (#34, #42) of the catheter (#20, #40) in a vicinity of the target, responsive to the position signal based on the six dimensions of location and orientation information, rotate the proximal end of the catheter in order to cause the distal tip of the catheter to roll to a rotation the deflection curve of which includes the target, the rotation determined responsive to the position signal, and deflect the distal tip of the catheter along the deflection curve to the target.

The invention with respect to claim 18 comprises apparatus comprising a human-controllable steerable catheter (#20, #40) having a distal tip (#34, #42), the catheter comprising a position sensor (#30) configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor (#30) being fixed in a vicinity of the

distal tip (#34, 42); a robot (#22, #38) configured to be coupled to a proximal end of the catheter (#20, #40); and a control unit (#28) configured to: drive the robot (#22, #38) to apply rotation to the proximal end of the catheter, receive the position signal, responsive to the six dimensions of location and orientation information of the position signal, determine a roll of the distal tip of the catheter, and responsive to a determination that the roll lags the rotation, drive the robot to move a portion of the proximal end of the catheter.

The invention with respect to claim 35 comprises a method for use with a steerable catheter (#20, #40) having a distal tip (#34, #42) configured to be controllably deflectable in no more than two directions for any given rotation of the distal tip, such that a set of all points to which the tip can be deflected at the given rotation forms a deflection curve for the given rotation, the method comprising: receiving a position signal indicative of six dimensions of location and orientation information from a vicinity of the distal tip of the catheter (page 22, lines 17-18 and 29-31); and robotically positioning the distal tip of the catheter at a target by: robotically positioning the distal tip of the catheter in a vicinity of the target, responsive to the six dimensions of location and orientation information of the position signal (page 24, lines 2-4), robotically rotating the proximal end of the catheter in order to cause the distal tip of the catheter to roll to a rotation the deflection curve of which includes the target (page 24, line 31 to page 25, line 2), the rotation determined responsive to the six dimensions of location and orientation information of the position signal, and robotically deflecting the distal tip of the catheter along the deflection curve to the target (page 24, lines 8-11).

The invention with respect to claim 39 comprises a method for use with a human-controllable steerable catheter (#20, #40) having a distal tip (#34, #42) and a proximal end (#120), the method comprising: robotically rotating the proximal end of the catheter (page 27,

lines 15-17); receiving a position signal indicative of six dimensions of location and orientation information from a vicinity of the distal tip of the catheter (page 22, lines 17-18 and 29-31); responsive to the position signal, determining a roll of the distal tip (page 24, lines 1-4 and page 25, line 5); and responsive to a determination that the roll lags the rotation, robotically moving a portion of the proximal end of the catheter, wherein the steps of robotically rotating and robotically moving are performed non-manually (page 27, line 22 to page 28, line 8).

VI. GROUNDS OF REJECTION TO BE REVIEWED ON APPEAL

The issue presented for review by the Board of Patent Appeals and Interferences is whether independent Claims 1, 6, 7, 12, 13, 18, 35 and 39 and dependent claims 2-5, 8-11, 14-16, 19-21, 23, 24, 36, 37, 40-42, 44 and 45 are patentable over Ben-Haim.

VII. ARGUMENT

(A) Examiner's Rejection of Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 under 35 U.S.C. § 103 as anticipated by Ben-Haim is not proper; the reference does not teach or suggest each feature recited in the claims

Ben-Haim does not teach or suggest each feature of independent claims 1, 6, 7, 12, 13, 18, 35 and 39.

Among the problems recognized and solved by Appellants' claimed invention is the need to improve the effectiveness of readily available, steerable catheters. Appellants' novel system and method enables a surgeon to manually insert a typical steerable catheter, such as catheters that are widely commercially available, into a human subject and then employ robotic assistance to maneuver the catheter. Appellants' claims recite a system and method that robotically manipulates a human-controllable steerable catheter; the system and method enables an inexpensive, human-controllable steerable catheter to perform as well as an expensive, robotically manipulated catheter, improving the safety and accuracy of the medical procedure in

which the catheter is used, as well as being cost effective.

The Examiner acknowledges that Ben-Haim does not explicitly teach or suggest robots, end-effectors, and/or thumb controls (Final Office Action mailed January 31, 2011, page 4). Instead, Ben-Haim teaches a self-aligning catheter having a sensor and a self-aligning mechanism that deflects the distal end of the catheter automatically or under operator control (column 1, line 60 to column 2, line 2). The catheter of Ben-Haim could be considered a human-controllable steerable catheter to one of ordinary skill in the art.

The Examiner asserts that Ben-Haim's disclosure of embodiments where the catheter distal tip is deflected by direct electronic automatic control (column 9, lines 55-60) and other embodiments where the catheter distal tip is deflected by intermediate mechanical components that are automatically controlled suggests, to one of ordinary skill in the art, that a catheter could be modified to use mechanical parts which operate with controls on the catheter, such as a thumb control, and which are driven automatically, such as by a robot/controller (Final Office Action mailed January 31, 2011, page 4). This is not proper.

First, the Examiner's characterization of the present invention is incorrect. Appellant uses independent claim 6 as an exemplary claim; the other independent claims recite similar subject matter. Claim 6 recites a catheter having a manually operated thumb control AND a robot having an end-effector coupled to the thumb control (controlling the distal end of the catheter), the end-effector being controlled by a controller and a position signal. Specifically, claim 6 recites a feature of "a human-controllable steerable catheter comprising a thumb control configured to manually control a deflection of a distal tip of the catheter…" and a feature of "a robot comprising: an end-effector coupled to the thumb control; and a controller configured to non-manually manipulate the thumb control". Appellant points to Exhibit I, attached, which

illustrates features of the inventive system. Exhibit I contains screen prints originally submitted as Exhibit B as evidence in support of Appellants' Declaration Under 37 C.F.R. §1.131, electronically filed March 29, 2010, and entered into the record as Rule 130, 131 or 132 Affidavits on the same date. The Examiner acknowledged receipt of the Declaration in the Office Action mailed May 6, 2010. Exhibit I contains three screen prints (originally filed in Exhibit B as Screen Print 1, Screen Print 2 and Screen Print 8). The first screen print, herein labeled Screen Print A (originally labeled Screen Print 1), shows a standard catheter. The second screen print, herein labeled Screen Print B (originally labeled Screen Print 2), shows a robot or "robotic jig" to which the standard catheter can be connected and/or inserted. The third screen print, herein labeled Screen Print C (originally labeled Screen Print 8), shows inserting the distal tip of the standard catheter into the tube portion of the robotic jig of Screen Print B, creating the system comprising the catheter and the robot configured to manipulate the catheter. As shown in these Screen Prints, in this embodiment, a human-controllable steerable catheter is combined with a robot so that the robot can control the catheter.

Thus appellants' invention, as recited in the claims, enables a typical human-controllable steerable catheter to be robotically operated, for example after the catheter is manually insertion into a patient. Accordingly, any human-controllable steerable catheter can be used; a special catheter is not needed.

By contrast, Ben-Haim at best teaches substituting one type of control for another. As discussed above, Ben-Haim discloses embodiments where the catheter distal tip is deflected by direct electronic automatic control and embodiments where the catheter distal tip is deflected by intermediate mechanical components that are automatically controlled. Ben-Haim does not teach or suggest a catheter having a distal tip that is both manually steerable and robotically controlled.

Second, even assuming, *inter alia*, that the Examiner were correct, the Examiner does not provide any motivation as to why one skilled in the art would use the features disclosed by Ben-Haim to obtain appellants' invention. The Court in *KSR International Co. v. Teleflex Inc., 127 S.Ct. 1727, 82 USPQ2d 1385 (U.S. 2007)* noted that ''it can be important to identify a reason that would have prompted a person of ordinary skill in the relevant field to combine the elements in the way the claimed new invention does.'' *KSR,* at 1389 (USPQ2d). The Examiner does not provide any reason that would have prompted one of ordinary skill in the art to modify the catheter of Ben-Haim to obtain the present invention.

Hence, Ben-Haim does not teach or suggest each feature of the invention as recited in independent claims 1, 6, 7, 12, 13, 18, 35 and 39 and their dependent claims, claims 2-5, 8-11, 14-16, 19-21, 23, 24, 36, 37, 40-42, 44 and 45. Further, the Examiner has not made a proper rejection since no reason for modifying Ben-Haim is given. Therefore, Appellant's claimed present invention is neither anticipated by nor rendered obvious by this cited prior art reference and this rejection is in error and must be reversed.

(B) Conclusion

Based on the above arguments and remarks, Appellant respectfully submits that the claims of the instant invention on appeal are not obvious in light of Ben-Haim. Consequently, the rejection of the claims based on this reference is in error. In view of the remarks submitted hereinabove, the reference applied against Claims 1-16, 18-21, 23, 24, 35-37, 39-42, 44 and 45 on appeal does not render those claims unpatentable under 35 U.S.C. § 103(a). Thus, Appellant submits that the § 103 rejection is in error and must be reversed.

Should any fees be required, authorization is hereby given to charge deposit account 19-1013.

Respectfully submitted,

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VIII. CLAIMS APPENDIX

Claim 1. (Rejected) A robot for use with a human-controllable steerable catheter that includes a thumb control configured to manually control a deflection of a distal tip of the catheter and a position sensor configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor fixed in a vicinity of the distal tip of the catheter, the robot comprising:

an end-effector coupled to the thumb control; and

a controller configured to non-manually manipulate the thumb control in response to the position signal to drive the end-effector to position the distal tip of the catheter at a desired position based on the six dimensions of location and orientation information.

Claim 2. (Rejected) The robot according to claim 1, wherein the controller is configured to drive the end-effector to deflect the distal tip by moving the thumb control longitudinally with respect to a longitudinal axis of the catheter.

Claim 3. (Rejected) The robot according to claim 1,

wherein the catheter includes a handle configured to control a roll of the distal tip,

wherein the robot comprises a handle end-effector coupled to the handle, and

wherein the controller manipulates the handle to drive the handle end-effector to roll the distal tip.

Claim 4. (Rejected) The robot according to claim 1,

wherein the catheter includes a handle configured to advance and withdraw the catheter,

wherein the robot comprises a handle end-effector coupled to the handle, and

wherein the controller drives the handle end-effector to perform, by manipulating the handle, at least one action selected from the list consisting of: advancing the catheter and withdrawing the catheter.

Claim 5. (Rejected) The robot according to claim 1, comprising a computer pointing device receiving an indication of a desired position of the distal tip of the catheter.

Claim 6. (Rejected) Apparatus comprising:

a human-controllable steerable catheter comprising a thumb control configured to manually control a deflection of a distal tip of the catheter and a position sensor configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor being fixed in a vicinity of the distal tip of the catheter; and

a robot, comprising:

an end-effector coupled to the thumb control; and

a controller configured to non-manually manipulate the thumb control in response to the position signal to drive the end-effector to position the distal tip of the catheter at the desired position based on the six dimensions of location and orientation information.

Claim 7. (Rejected) A robot for use with a human-controllable steerable catheter that includes controls configured to control a deflection of a distal tip of the catheter and a position sensor configured to generate a position signal indicative of six dimensions of location and orientation

information, the position sensor being fixed in a vicinity of the distal tip of the catheter, and the controls being generally optimized for manipulation by a human hand, the robot comprising:

at least one end-effector coupled to at least a portion of the controls; and

a controller configured to drive the at least one end-effector to deflect the distal tip in response to the position signal by inducing motion of the portion of the controls that generally mimics motion of the portion of the controls induced when a human hand manipulates the controls.

Claim 8. (Rejected) The robot according to claim 7, wherein the controller is configured to drive the end-effector to deflect the distal tip by moving the portion of the controls longitudinally with respect to a longitudinal axis of the catheter.

Claim 9. (Rejected) The robot according to claim 7,

wherein the controls are configured to control a roll of the distal tip,

wherein the robot comprises a roll end-effector coupled to the controls, and

wherein the controller is configured to drive the roll end-effector to roll the distal tip by inducing motion of the controls that generally mimics motion of the controls induced when a human hand manipulates the controls.

Claim 10. (Rejected) The robot according to claim 7,

wherein the controls are configured to advance and withdraw the catheter,

wherein the robot comprises a longitudinal motion end-effector coupled to the controls, and

wherein the controller is configured to drive the longitudinal motion end-effector to perform, by inducing motion of the controls that generally mimics motion of the controls induced when a human hand manipulates the controls, at least one action selected from the list consisting of: advancing the catheter and withdrawing the catheter.

Claim 11. (Rejected) The robot according to claim 7,

comprising a computer pointing device configured to receive an indication of a desired position of the distal tip of the catheter.

Claim 12. (Rejected) Apparatus comprising:

a human-controllable steerable catheter comprising controls configured to manually control a deflection of a distal tip of the catheter and a position sensor configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor being fixed in a vicinity of the distal tip of the catheter, and and the controls being generally optimized for manipulation by a human hand; and

a robot, comprising:

at least one end-effector coupled to at least a portion of the controls; and

a controller configured to drive the end-effector to position the distal tip of the catheter at the desired position based on the six dimensions of location and orientation information by inducing motion of the portion of the controls that generally mimics motion of the portion of the controls induced when a human hand manipulates the controls.

Claim 13. (Rejected) Apparatus comprising:

a human-controllable steerable catheter, comprising:

a distal tip configured to be controllably deflectable in no more than two directions for any given rotation of the distal tip, such that a set of all points to which the tip can be deflected at the given rotation forms a deflection curve for the given rotation; and

a position sensor configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor being fixed in a vicinity of the distal tip;

a robot configured to manipulate a proximal end of the catheter; and

a control unit configured to:

receive the position signal, and

position the distal tip of the catheter at a target by manipulating the robot in response to the position signal to:

position the distal tip of the catheter in a vicinity of the target, responsive to the position signal based on the six dimensions of location and orientation information,

rotate the proximal end of the catheter in order to cause the distal tip of the catheter to roll to a rotation the deflection curve of which includes the target, the rotation determined responsive to the position signal, and

deflect the distal tip of the catheter along the deflection curve to the target.

Claim 14. (Rejected) The apparatus according to claim 13, wherein the distal tip is configured to be controllably deflected in no more than one direction for the given rotation of the distal tip.

Claim 15. (Rejected) The apparatus according to claim 13, wherein the control unit is configured to position the distal tip in the vicinity of the target by positioning the distal tip so that the deflection curve of at least one rotation of the distal tip includes the target.

Claim 16. (Rejected) The apparatus according to claim 13, comprising a computer pointing device configured to receive an indication of a position of the target, wherein the control unit is configured to drive the robot to position the distal tip at the position of the target, responsive to the position signal.

Claim 17. (Cancelled)

Claim 18. (Rejected) Apparatus comprising:

a human-controllable steerable catheter having a distal tip, the catheter comprising a position sensor configured to generate a position signal indicative of six dimensions of location and orientation information, the position sensor being fixed in a vicinity of the distal tip;

a robot configured to be coupled to a proximal end of the catheter; and

a control unit configured to:

drive the robot to apply rotation to the proximal end of the catheter,

receive the position signal,

responsive to the six dimensions of location and orientation information of the position signal, determine a roll of the distal tip of the catheter, and

responsive to a determination that the roll lags the rotation, drive the robot to move a portion of the proximal end of the catheter.

Claim 19. (Rejected) The apparatus according to claim 18, wherein the control unit is configured to drive the robot to move the portion of the proximal end of the catheter to perform at least one action selected from the list consisting of: straightening the distal tip and deflecting the distal tip.

Claim 20. (Rejected) The apparatus according to claim 18, wherein the control unit is configured to drive the robot to move the portion of the proximal end of the catheter to effect translational back and forth motion of the distal tip.

Claim 21. (Rejected) The apparatus according to claim 18, wherein the control unit is configured to drive the robot to move the portion of the proximal end of the catheter to perform at least one action selected from the list consisting of: advancing the distal tip and withdrawing the distal tip.

Claim 22. (Cancelled)

Claim 23. (Rejected) The apparatus according to claim 18, wherein the control unit is configured to move the portion of the proximal end of the catheter to jiggle the distal tip.

Claim 24. (Rejected) The apparatus according to claim 23, wherein the control unit is configured to jiggle the distal tip by rotating the proximal end of the catheter.

Claims 25-34. (Cancelled)

Claim 35. (Rejected) A method for use with a steerable catheter having a distal tip configured to be controllably deflectable in no more than two directions for any given rotation of the distal tip, such that a set of all points to which the tip can be deflected at the given rotation forms a deflection curve for the given rotation, the method comprising:

receiving a position signal indicative of six dimensions of location and orientation information from a vicinity of the distal tip of the catheter; and

robotically positioning the distal tip of the catheter at a target by:

robotically positioning the distal tip of the catheter in a vicinity of the target, responsive to the six dimensions of location and orientation information of the position signal,

robotically rotating the proximal end of the catheter in order to cause the distal tip of the catheter to roll to a rotation the deflection curve of which includes the target, the rotation determined responsive to the six dimensions of location and orientation information of the position signal, and

robotically deflecting the distal tip of the catheter along the deflection curve to the target.

Claim 36. (Rejected) The method according to claim 35, wherein robotically positioning the distal tip in the vicinity of the target comprises robotically positioning the distal tip so that the deflection curve of at least one rotation of the distal tip includes the target.

Claim 37. (Rejected) The method according to claim 35, comprising receiving an indication of a position of the target, wherein robotically deflecting the distal tip comprises robotically deflecting the distal tip to the position of the target, responsive to the position signal.

Claim 38. (Cancelled)

Claim 39. (Rejected) A method for use with a human-controllable steerable catheter having a distal tip and a proximal end, the method comprising:

robotically rotating the proximal end of the catheter;

receiving a position signal indicative of six dimensions of location and orientation information from a vicinity of the distal tip of the catheter;

responsive to the position signal, determining a roll of the distal tip; and

responsive to a determination that the roll lags the rotation, robotically moving a portion of the proximal end of the catheter, wherein the steps of robotically rotating and robotically moving are performed non-manually.

Claim 40. (Rejected) The method according to claim 39, wherein robotically moving the portion of the proximal end of the catheter comprises robotically performing at least one action selected from the list consisting of: straightening the distal tip and deflecting the distal tip.

Claim 41. (Rejected) The method according to claim 39, wherein robotically moving the portion of the proximal end of the catheter comprises robotically translating the distal tip back and forth.

Claim 42. (Rejected) The method according to claim 39, wherein robotically moving the portion of the proximal end of the catheter comprises robotically performing at least one action selected from the list consisting of: advancing the distal tip and withdrawing the distal tip.

Claim 43. (Cancelled)

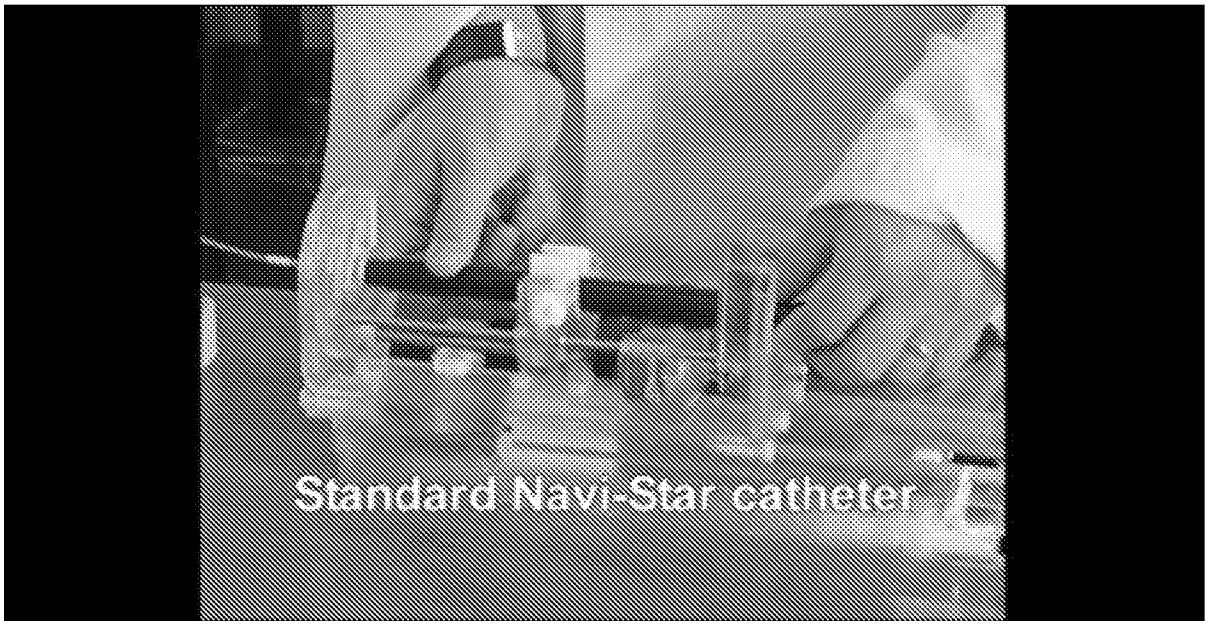
Claim 44. (Rejected) The method according to claim 39, wherein robotically moving the portion of the proximal end of the catheter comprises robotically jiggling the distal tip.

Claim 45. (Rejected) The method according to claim 44, wherein robotically jiggling the distal tip comprises robotically rotating the proximal end of the catheter.

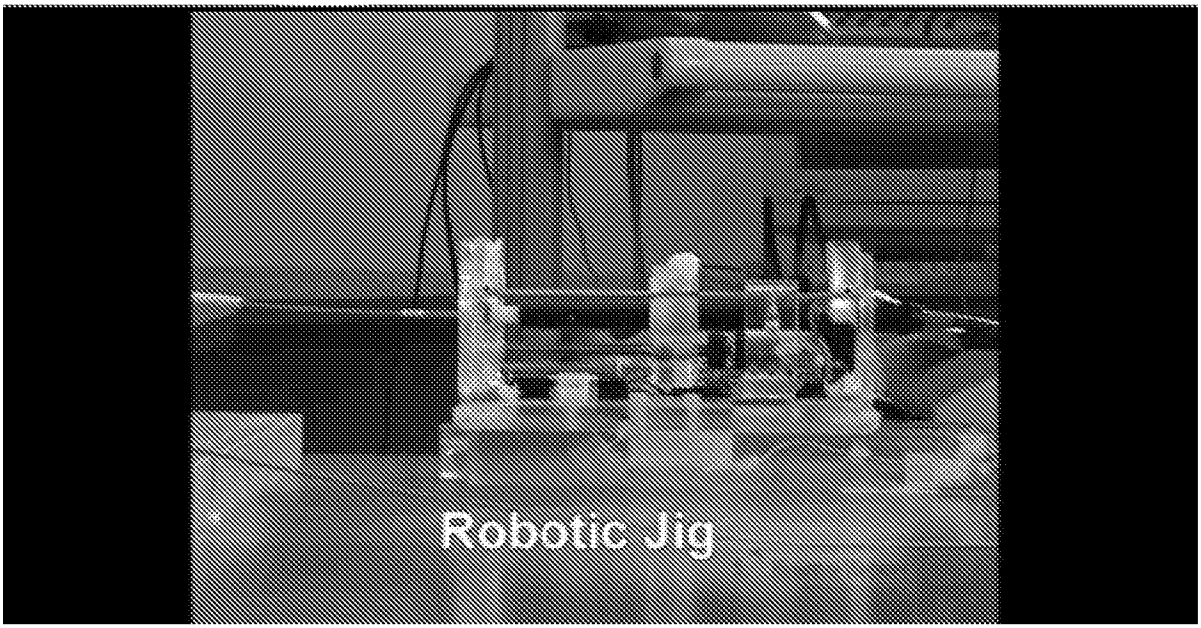
IX. EVIDENCE APPENDIX

Exhibit I contains three screen prints originally submitted as Exhibit B as evidence in support of Appellants' Declaration Under 37 C.F.R. §1.131, electronically filed March 29, 2010, and entered into the record as Rule 130, 131 or 132 Affidavits on the same date. The Examiner acknowledged receipt of the Declaration in the Office Action mailed May 6, 2010.

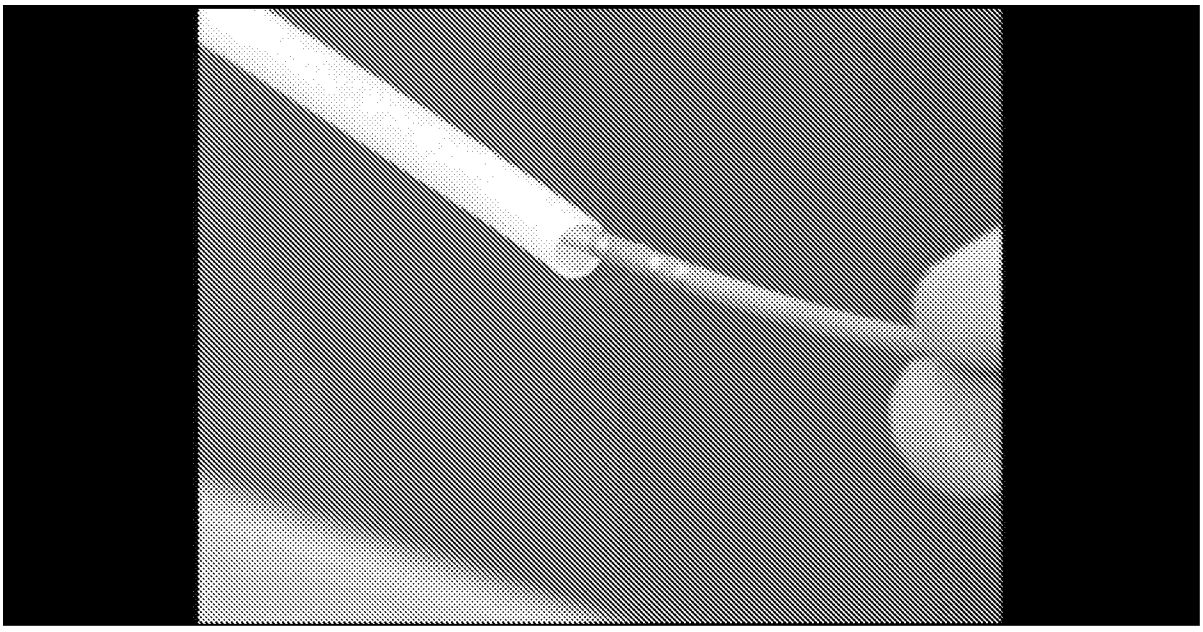
Screen Print A



Screen Print B



Screen Print C



X. RELATED PROCEEDINGS APPENDIX

Not applicable.